

Solid State Personal Communication Power Amplifier

HD29242

850 – 870 MHz / 25Watts CW, 5Watts CDMA

- Solid-state linear design
- Small and lightweight
- Suitable for CW, GSM, ESMR, iDEN, TDMA & multi FA CDMA
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built in Output Isolator
- Built in monitoring circuit



ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	850		870	MHz
Output Power CW	P _{SAT}	40			Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}	25			Watt
Output Power CDMA	P _{CDMA}	5			Watt
Small Signal Gain	G _{SS}	44	46	48	dB
Gain Flatness (ALC On)	ΔG			±0.5	dB
Third Order Intercept Point 2–Tones, P _{OUT} = 5 W Avg., Δ = 500 KHz	IP3	+58	+59		dBm
Input/Output Return Loss	S ₁₁ / S ₂₂			-14	dB
Noise Figure	NF		7	10	dB
Harmonics @ P1 dB Gain Compression Point	H			-45	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Supply Current @ P _{OUT} = 25 W CW	I _{DD}		3.0		Amp
Supply Current @ P _{OUT} = 5 W with 2-tones	I _{DD}		2.0	2.5	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	5.0 x 3.75 x 1.0	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	Dsub, 9 Pins, Male		
Cooling	External Heatsink		



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ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	Tc	-20		+75	°C
Storage Temperature	Tstg	-40		+85	°C
Relative humidity (non-condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	ALT		30,000		Feet
Shock / Vibration (MIL-STD-810F Method 516.5)	SH / VI		Airborne		

PROTECTIONS

Input Overdrive		+6 dBm		Max
Over Power Shutdown		45 dBm		Min
Load VSWR @ 25W output power		∞ @ all load phase & amplitude		Nom
Thermal Overload		85°C shutdown		Max

INTERFACE CONNECTORS

D-Sub, 9-Pin

Pin #	Description	Specifications
1	Forward Power Monitor	Continuous Analog voltage relative to forward power via RMS detector FWDM: 20 – 40 dBm @ 0 – 5 V (100 mV/dB) 30dBm output = $V_{FWD} = 2.5 V_{DC}$
2	Reverse Power Monitor	Continuous Analog voltage relative to reflected power via RMS detector REVM: 17 – 37 dBm @ 0 - 5V (100 mV/dB) 30dBm output = $V_{REV} = 2.5 V_{DC}$
3	ALC ON/OFF	ALC ON = TTL “Low” ALC OFF = TTL “High”
4	ALC Level	Continuous adjustable range via analog input levels Setting Point (ASP): 30 – 40 dBm @ 0 – 5 V (100 mV/dB) Error Range (AER): ±1.5 dB Response Time (ART): 100 mS/dB
5	Mute	Amplifier Enable: TTL “Low” or Open Amplifier Disable: TTL “High”
6	+VDD	+28 ± 2 V _{DC}
7	+VDD	+28 ± 2 V _{DC}
8	GND	Ground
9	GND	Ground
LED	LED Indicator	Output Power level indicator referenced to ALC setting (Independent of ALC ON or OFF)

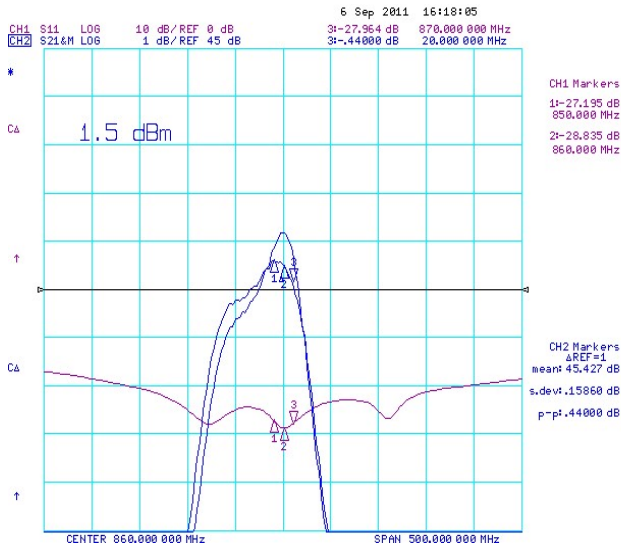
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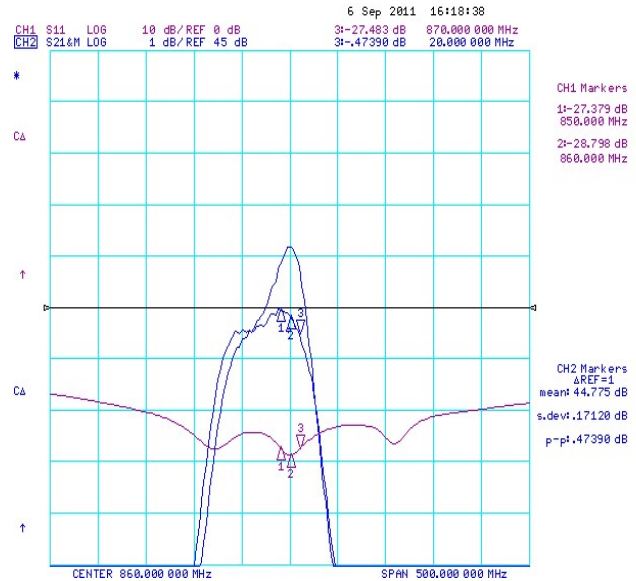
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TYPICAL PERFORMANCE PLOTS

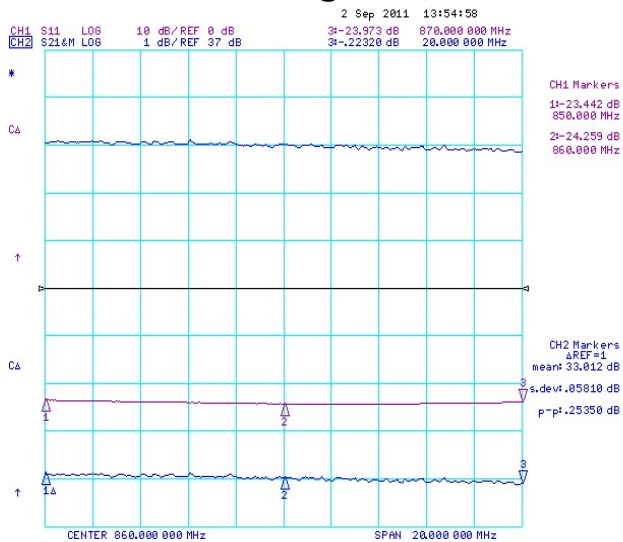
Plots 1 - Small Signal and P1dB Gain
 Top Curve: Small Signal Gain @ PIN = -20dBm
 Middle Curve: Power Gain @ P1dB, PIN = +1.5dBm



Plot 2 - Small Signal and PSAT
 Top Curve: Small Signal Gain @ PIN = -20dBm
 Middle Curve: PSAT @ PIN = +3.5dBm



Plot 3 - ALC Flatness @ 10W & 2W
 Top Curve: ALC @ 40dBm, PIN = 0dBm
 Bottom Curve: ALC @ 33dBm, PIN = 0dBm



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OUTLINE DRAWING

